Milestone Report

for Upland Source Control at the Portland Harbor Superfund Site

March 2006

Prepared by the Oregon Department of Environmental Quality
as required by the 2005 Portland Harbor Joint Source Control Strategy

This document is posted on DEQ's web page at http://www.deq.state.or.us/nwr/PortlandHarbor/JSCS.htm.

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1.0 Introduction

On December 1, 2000, a section of the lower Willamette River within the City of Portland, the Portland Harbor, was added to the Superfund National Priority List (NPL). In February 2001, the Oregon Department of Environmental Quality (DEQ), United States Environmental Protection Agency (EPA), and other governmental parties[1] signed a Memorandum of Understanding (MOU) that provided a framework for cooperation in the investigation and cleanup of the Portland Harbor Superfund Site to optimize federal, state, tribal and trustee expertise and available resources.

Under the 2001 MOU, EPA was designated as the lead agency for investigating and cleaning up "in-water" contamination in the Harbor, or contamination in the river water and underlying sediment, using federal Superfund authorities. DEQ, using state cleanup authority, was designated as the lead agency for identifying and controlling "upland" sources of contamination, or those sources of pollution adjacent to or near the river that may be contaminating river water or sediments. To coordinate in-water cleanup and upland source control work, the MOU specifies that DEQ and EPA will jointly develop a source control strategy that defines a process for identifying and controlling potential sources of contamination threatening the river.

DEQ and EPA finalized the Portland Harbor Joint Source Control Strategy (JSCS) in December 2005[2]. The overarching goal of the JSCS is to identify, evaluate and control sources of contamination that may affect the Willamette River in a manner that is consistent with the objectives and schedule for the Portland Harbor remedial investigation and feasibility study (RI/FS). Timely upland source control is necessary to allow cleanup of the river to proceed without risk of significant recontamination.

The JSCS requires DEQ to prepare a Milestone Report on a quarterly basis that summarizes the status of DEQ's upland source control work. This is the first Milestone Report. Milestone Reports are submitted to EPA, and provide the basis for quarterly meetings with EPA and our government partners to discuss site prioritization and source control progress. These reports also serve as documentation of progress on river-wide source control within Portland Harbor.

1.1 Organization of the Milestone Report

The Milestone Report is organized as follows.

- Section 2.0: Identifying Potential Sources of Contamination in Portland Harbor – This section provides the history of DEQ's work to identify potential sources of contamination to the Willamette River in Portland Harbor, including site discovery and site assessment

[1] The signatory partners to the MOU include the EPA, DEQ, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Grand Ronde Community of Oregon, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Nez Perce Tribe, National Oceanic and Atmospheric Administration, Oregon Department of Fish and Wildlife, and U.S. Department of the Interior.

[2] The JSCS is available on DEQ's web site at http://www.deq.state.or.us/nwr/PortlandHarbor/ph.htm; click "Joint Source Control Strategy" on the left side bar.

activities before and after the December 2000 Superfund listing. Tables 1, 2 and 3 provide additional information on site discovery and site assessment work.

- Section 3.0: Evaluating Potential Sources of Contamination to the River – This section describes DEQ's source control evaluation work for all confirmed or suspected upland sources of contamination to Portland Harbor, as summarized in Table 4.
- Section 4.0: Taking Measures to Control Sources and Making Source Control Decisions – This section describes the source control measures used at upland sites in Portland Harbor and the process for making source control decisions, including coordination with EPA and our government partners, and public involvement opportunities. Source control measures and decisions are summarized in Table 4.
- Section 5.0: Status of Ongoing and Completed Source Control Measures – This section describes the information presented in Table 4 that summarizes the status of ongoing and completed source control measures.
- Section 6.0: Issues Encountered in Source Control Work – This section describes issues affecting DEQ's ability to conduct source control work and proposes ways to resolve issues as well as a desired timeframe for resolution.
- Section 7.0: Summary – This section summarizes the overall status of source control work in Portland Harbor, highlighting accomplishments, key issues and next steps for moving forward.
- Section 8.0: Obtaining Additional Information on Upland Source Control Work – This section indicates where additional information can be found on the status of source control work at upland sites in Portland Harbor.
- Section 9.0: Information on Table 4, *Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor*: This section provides helpful information for interpreting Table 4, including definition of key terms and acronyms used.

2.0 Identifying Potential Sources of Contamination in Portland Harbor

In 1997, DEQ asked EPA for assistance in identifying potential sources of elevated chemical concentrations detected at sites within Portland Harbor. The result of this request was a sediment investigation that covered six miles of Portland Harbor (now known as the Initial Study Area, or ISA[3]) considered likely to have the highest chemical concentrations based on the presence of a number of industrial sources. The findings of this study, documented in EPA's 1998 "Portland Harbor Sediment Investigation Report," suggested that there were several areas of elevated chemical concentrations in river sediments within the Harbor. Because of these findings, DEQ initiated a proactive site discovery process that included evaluation of available information on the activities and conditions in Portland Harbor to identify likely sources of upland contamination threatening the river.

[3] The ISA was a six mile stretch of the lower Willamette River, extending from the southern tip of Sauvie Island upstream to Swan Island.

EPA's 1998 "Portland Harbor Sediment Investigation Report" found that most of the areas of elevated chemical concentrations in river sediments were near known sources of upland pollution. There were some sediment areas with high chemical concentrations, however, that were not near known or identified upland sources. In addition, it appeared that contaminant migration and resuspension were limited within the Harbor, suggesting the existence of additional unidentified upland sources. These findings formed the basis of DEQ's site discovery efforts in Portland Harbor.

2.1 DEQ Site Discovery and Site Assessment work prior to the December 2000 listing

In 1998 and 1999, DEQ followed eight initial steps in searching for additional sources of upland contamination in Portland Harbor (site discovery) and assessing potential sources to determine the need for source control actions (site assessment). These eight steps are described in detail in DEQ's June 1999 "Portland Harbor Sediment Management Plan" and are summarized below.

Step 1: Identifying contaminants of interest – DEQ used the "Portland Harbor Sediment Investigation Report" results to identify a representative list of contaminants of interest (COI) – chemicals present in the Harbor at levels that could threaten human health and the environment. The COIs included metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), chlorinated pesticides, chlorinated herbicides, dioxin and tributyl tin (TBT).

Step 2: Identifying elevated concentrations – DEQ developed a method for determining what concentrations constituted "elevated" COI levels within the Harbor. Because there was no clear definition of background contaminant concentrations or ambient conditions in the Portland Harbor area, sediment data from the Harbor were evaluated with a graphical method previously used by the U.S. Geological Survey Water Resources Division to define apparent elevated contaminant levels.[4] "Baseline" contaminant concentrations were developed for Portland Harbor sediment from this graphical evaluation method.

Step 3: Identifying locations where baseline concentrations are exceeded – Maps were prepared to show the locations of samples with elevated concentrations of COIs throughout the Harbor. DEQ project managers working on active cleanup sites in the Harbor reviewed these maps and provided feedback on whether the elevated concentrations found in sediment appeared to be related to sources on sites that DEQ was actively working to investigate or clean up, or whether the maps indicated the potential presence of another source. Table 1 provides a list of sites in Portland Harbor that DEQ was actively working on in 1999, along with a summary of DEQ project managers' evaluation of the potential relationship between in-water sediment COI levels and contamination at these active cleanup sites.

Step 4: Identifying potential sources – DEQ then began to identify other potential sources of contamination in the general vicinity of Portland Harbor. These site discovery efforts targeted areas of elevated sediment contamination either unrelated to sites that DEQ was already investigating or cleaning up, or areas adjacent to active cleanup sites for which site data suggested the potential presence of another source.

[4] The method was described by Frank Rinella, a Water Quality specialist with USGS Water Resources Division, at a Contaminated Sediments Conference sponsored by The Environmental Law Education Center, January 30, 1998.

Site discovery work included researching information on each area of elevated COIs to identify potential upland sources for the sediment contamination, analyzing area and site drainage patterns, evaluating historic activities and conducting field reconnaissance work. Upland properties that were found to be associated with the sediment contamination were then prioritized based on sediment contamination levels, the number of COIs present in the sediment, the toxicity of the contaminant to people and the environment (using EPA's water quality ranking) and professional judgment.

Step 5: Requesting information from property owners – In January 1999, DEQ sent letters to all owners of property (approximately 90 parties) located within 1,500 feet of Portland Harbor to provide information on DEQ's site discovery efforts and to request additional information. These "potentially responsible parties" were asked to provide historic and current information about activities at the site to assist DEQ's site discovery process. Follow-up letters and questionnaires were sent to a subset of the property owners, and when appropriate, to site lessees that were potentially responsible for sources of sediment contamination in the Harbor. Site discovery questionnaires were sent to the property owners listed in Table 2.

Step 6: Documenting likely sources of contamination – Potential likely sources of contamination were identified for each of the sediment areas that had COI contamination above baseline levels, and available records for these sources were documented. Forty-four likely potential sources were identified through the process described above (Table 2). A file was then created in DEQ's Environmental Cleanup Site Information (ECSI) database for each potential source to complete the site discovery process for the Portland Harbor area. DEQ then initiated the site assessment process, the next phase of site evaluation.

Step 7: Site screening and prioritization – In the first phase of site assessment, sediment samples were correlated with presumed upland sources (listed in Table 2) for the purposes of preliminary site screening. The highest priority sources were those associated with sediment contaminant concentrations reflecting the top five percentile of chemical concentrations for a particular chemical. Priority was given to those sites where associated sediment concentrations were more than three times the baseline level or where baseline concentrations were exceeded for several different contaminants. Consideration was also given to the toxicity of the chemicals found to be elevated using EPA's water quality rankings. Lower priority was given to upland sites associated with only a small subset of COIs that exceed baseline levels and where the magnitude of the exceedance was less than a factor of three for all constituents. Professional judgment was also used to integrate other factors pertinent to the priority for follow-up. These factors included: evidence of an on-going release, observations made during field reconnaissance, concentration elevations that suggested a release but were below baseline levels, historic information that suggested a release not associated with a particular baseline exceedance, the quality of information linking a potential source to the elevated concentrations, the presence of other metals not considered of primary concern (e.g., iron, magnesium, thallium, cobalt, vanadium, and titanium), and an evaluation of the individual compounds within some of the other contaminant groups (e.g., individual PAHs or phthalates).

Step 8: Strategy recommendations – DEQ then developed recommendations for further investigation and/or cleanup for a number of high priority sources. These "strategy recommendations" summarized available information on the potential sources and potential threats posed by the sources, and recommended investigation/cleanup actions and priority levels for the work. All available information on file and any information received through questionnaires was reviewed in detail to develop the recommendations. Where historical site data was lacking, a review of Sanborne Insurance Maps was often completed.

DEQ's initial effort of completing strategy recommendations for all likely Portland Harbor sources was curtailed with EPA's December 2000 listing of the Harbor.

2.2 DEQ Site Discovery and Site Assessment work following the December 2000 listing

At the time of the Portland Harbor listing (December 2000), DEQ was working to investigate and/or clean up 16 sites in the Portland Harbor area (listed in Table 1). By the time of the listing, DEQ had identified an additional 44 upland sites through the site discovery process were potential or confirmed sources of contamination to the river in the Harbor (listed in Table 2).

DEQ's site discovery and site assessment efforts continued after EPA's December 2000 listing of Portland Harbor, and for the most part, these efforts followed the same process used prior to the listing. DEQ's work continued to focus on facilities along the banks of the Willamette River within the bounds of the 1997 Portland Harbor sediment investigation.

As the Portland Harbor study area began to grow beyond the Initial Study Area, DEQ's site discovery and site assessment efforts expanded with it. Recently, much of DEQ's site discovery and site assessment work has focused on identifying potential sources of contamination threatening the river through stormwater that is piped to the river from surrounding upland areas. DEQ has worked closely with the City of Portland to identify upland sources contributing contamination via the City's municipal stormwater system. Since the Portland Harbor Superfund listing in 2000, DEQ has identified an additional 19 sites adjacent to or near Portland Harbor through the site discovery process (Table 3).

3.0 Evaluating Potential Sources of Contamination to the River

DEQ is now investigating or directing source control work at nearly 60 upland sites in Portland Harbor. Preliminary investigation activities at these sites are designed to determine whether the site is a potential or ongoing source of contamination to the river. These investigations, or "source control evaluations," consider all potential, current and historic contaminant sources and pathways for the contaminants to migrate to the river. Potential pathways include:

- Direct discharges – Pollutants from commercial, industrial, private or municipal outfalls are being discharged directly to the Portland Harbor Superfund Site. Many of these discharges are permitted under the Clean Water Act National Pollutant Discharge Elimination System

(NPDES). Permitted discharges include industrial wastes, storm water runoff, and combined sewer overflows (CSOs)[5].

- Groundwater – Contaminated groundwater may enter the river directly via discharge through sediments, bank seeps, or it may infiltrate into storm drains/pipes, ditches or creeks that discharge to the river. Contaminant migration may occur as non-aqueous phase liquids (NAPLs) or as chemicals dissolved in the groundwater itself.
- Stormwater – Contaminants may be carried to the river by water that runs off a site into storm drains after it rains, delivered to the river by stormwater pipes (including permitted and unpermitted stormwater discharges).
- Overland transport/sheet flow – The uncontrolled flow of water from a site to the river and the transport of other materials from a site may deliver contaminants to the river.
- Bank erosion/leaching – River bank soil, contaminated fill, waste piles, landfills and surface impoundments may release contaminants directly to the river through erosion, via soil erosion to storm water, or by leaching to groundwater.
- Overwater activities – Contaminants from overwater activities (e.g., sandblasting, painting, unloading, maintenance, repair and operations) at riverside docks, wharves, or piers; discharges from vessels (e.g., gray, bulge, ballast waters); full releases; and spills may affect the river.

These potential contaminant migration pathways are evaluated for each site, and sites that are identified as current or potential sources of pollution to the river are characterized and prioritized. Source control measures are then initiated, or further evaluation of source control alternatives is conducted to determine whether source control measures are required.

Table 4 provides a summary of confirmed and suspected upland sources of contamination to the river that DEQ is either actively working on or has finished source control work on by issuing a final source control decision. Table 4 also provides the basis for the determination that a site is a source of contamination to the river, the status of and schedule for source control evaluation, and the priority of the site for source control. The table includes the priority of each contaminant migration pathway for each site, as well as the overall priority of the site based on the pathway priorities.

High priority sites are identified in the table based on existing site information, and subsequent Milestone Reports will identify any new high priority sites as new information becomes available. Source control is expected to move forward at high priority sites without delay.

4.0 Taking Measures to Control Sources and Making Source Control Decisions

DEQ determines the need for source control measures at each upland site, in consultation with EPA, based on the completeness of contaminant migration pathways, exceedances of Screening

[5] CSO events are untreated discharges of combined storm water, sanitary sewage from residential, commercial, and industrial sources that overflow from the sewer system into the river during heavy rainfall periods when the amount of storm water and sewage exceeds the capacity of the collection system.

Level Values (SLVs), and other factors as appropriate. See p. 3-1 through 3-6 of the JSCS for more information about SVLs, and p. 4-1 through 4-8 of the JSCS for more information about the source control decision process.

4.1 Types of source control measures

Upland source control is an iterative process, where early steps may be revisited and conclusions refined by information gathered later in the process. A combination of tools may be used to control a source, including but not limited to the following.

- Technical assistance – Technical assistance, often provided during inspections, provides technical information designed to help individual businesses bring their facilities into compliance with environmental regulations. DEQ's Hazardous Waste Program is actively providing technical assistance to facilities within the Portland Harbor Superfund Site area.
- Cleaning up contaminated upland areas – Cleanup work addresses contaminated soil, groundwater, stormwater and other sources and focuses on reducing or eliminating contaminant migration to the river. Common source control measures include removing highly contaminated soil areas, stabilizing or capping contaminated bank areas, treating or containing contaminated groundwater, and extracting contaminated sediment from storm sewer systems. Source control measures vary from site to site.
- Source control of active discharges – Tools to control active discharges include best management practices, industrial process changes, pollution prevention practices, and technology-based effluent controls. Compliance is achieved voluntarily or through administrative actions, including permits or enforcement.
- Source control of storm water – Storm water source control is complex because storm drain systems capture discharges from many different sources (e.g., land use activities, runoff from contaminated sites, and infiltration of contaminated groundwater into the storm drain system). It is also complex because storm water regulation may involve federal, state and local agencies. Because of this complexity, all of the tools described above are useful for storm water source control and will be used as appropriate.
- Administrative actions and enforcement – Administrative actions include licenses, permits, deed restrictions, requirements for site development plans, and enforcement actions, which may be necessary when administrative actions are violated. Agencies rarely take enforcement actions without first conducting an inspection and documenting findings, requested changes, warnings and offers of technical assistance. When enforcement actions are warranted, they are usually taken in escalating order, starting with notices of violation, moving to enforcement or compliance orders requiring specific changes by a set date, and ending in monetary penalties. Formal cleanup actions performed under an order or decree use oversight and enforcement to ensure that appropriate actions are taken in a timely manner.

Table 4 summarizes source control decisions conducted at upland sites, the basis for the determination that upland source control measures are necessary, a summary of the selected source control measure(s), and a schedule for implementing the source control measure(s).

4.2 DEQ coordination with EPA and partners on source control decisions

As the lead agency for identifying and controlling sources of upland contamination threatening the river in Portland Harbor, DEQ coordinates with EPA and our government partners on source control work. This includes documenting, tracking and coordinating source control efforts as described in Sections 2.5 and 7 of the JSCS.

DEQ will provide EPA and our partners with an opportunity to review source control decisions prior to being finalized. These decisions typically fall into the following three categories.

- DEQ has determined that a site is not a current or future source of contaminants to Portland Harbor and that no source control measures are required.
- DEQ has selected the source control measures for a site.
- DEQ has concluded that source control at a site is complete, or in the case of systems that require operation and maintenance (e.g., hydraulic containment), that the source control action is effective.

DEQ will inform EPA and our partners of pending source control decisions and the schedule for review, and will provide copies of source control decision documentation to EPA and partners upon request. EPA and partners will have 30 days to provide comments to DEQ on source control decisions.

In addition to this regular review and comment process, some upland sites in Portland Harbor may warrant closer coordination between DEQ, EPA and our partners for source control (e.g., the Gasco site and potential source control measures for the chlorinated solvent groundwater plume at the Siltronic site). In these instances, DEQ and EPA source control coordinators will develop a project-specific coordination strategy.

4.3 Public involvement in source control decisions

DEQ Cleanup Program statutes and rules require that a public notice and comment opportunity be provided prior to DEQ's selection of a final site cleanup remedy and before DEQ determines that the cleanup is complete. For upland Portland Harbor cleanup projects, this means that DEQ issues a public notice and seeks public comments on the recommended final site cleanup strategy. Once public input is considered, DEQ's final decision is documented in a Record of Decision (ROD) for the site. For most sites, the upland DEQ ROD includes elements that address both source control for Portland Harbor and cleanup actions specific to areas of upland contamination that are not related to pollution in the Harbor.

Many of the source control measures implemented at upland sites are conducted prior to the selection of the final upland site remedy. While public notice and comment is not required for these "interim" remedial actions under DEQ statutes and rules, DEQ typically does issue a public notice and seek public comments when the action is likely to be a substantive piece of the final site remedy, or as the DEQ project manager determines is appropriate.

DEQ does not typically seek public comments for small-scale interim source control measures and time critical actions. Project managers will, however, issue notices as appropriate to let the public know that the activity is being conducted.

5.0 Status of Ongoing and Completed Source Control Measures

Table 4 summarizes the status of ongoing source control measures (SCMs), including SCM activities completed to date, proposed SCM activities, and a target schedule for completion. To the extent practicable, DEQ has collected information and/or made estimates of the mass or volume of contaminants removed, contained, treated or otherwise controlled, to help demonstrate the progress of source control activities. This initial Milestone Report includes only limited information on the mass or volume of contaminants controlled; subsequent Milestone Reports will include more information.

Table 4 also summarizes completed SCMs and provides the date that the SCM was completed, the date of EPA review and comment, and any operation and maintenance requirements associated with the SCM.

6.0 Issues Encountered in Source Control Work

This section summarizes issues affecting DEQ's ability to make source control decisions or completeness of determinations for any step of the source control process. This section also presents DEQ's proposed ways to resolve the issues and a desired timeframe for resolution. Six issues have been identified in this initial Milestone Report.

Issue 1: Moving certain projects through the source control process
For a number of different reasons, certain DEQ Portland Harbor cleanup projects are not proceeding through the source control process at an acceptable pace. Source control activities at the sites need to be accelerated in order to identify, evaluate and control upland contaminant sources before the Portland Harbor Record of Decision.

To resolve this issue, DEQ proposes to first identify these sites and then accelerate their schedules for source control work. Sites that need to be accelerated include:

- Premier Edible Oil
- Crawford Street
- Georgia Pacific Linnton
- Schnitzer Burgard
- MarCom South
- GS Roofing

DEQ will report on efforts to accelerate source control work at these sites in the next Milestone Report (June 2006).

Issue 2: Completing source control at the Gasco site

NW Natural's Gasco site is a high priority site for upland source control. The distribution and magnitude of upland contamination at the Gasco site are extensive and very significant. DEQ has directed NW Natural to collect data to support the selection, design, installation and operation of source control measures, rather than conducting further source control evaluation. NW Natural is moving forward with this data collection work, but with the amount of work necessary, DEQ needs to press NW Natural with an aggressive schedule.

DEQ recently assigned Project Manager Heidi Blischke to direct source control work at the Gasco site. Heidi has the experience and the time to manage the project on an aggressive schedule. DEQ is also currently negotiating an amended agreement with NW Natural that will increase DEQ's ability to require compliance with an aggressive schedule.

Issue 3: DEQ staff resource limitations

Limited staff resources are affecting DEQ's ability to conduct and complete source control work in Portland Harbor. The size of DEQ's Cleanup Program was recently reduced due to budget constraints, and with that reduction, DEQ lost several staff working on Portland Harbor. It is unlikely that DEQ's Portland Harbor staffing levels will be increased in the near future.

DEQ is continually looking at staff work load and developing priorities to address the most important work. DEQ will continue Portland Harbor source control efforts focusing on the most significant and potentially significant upland sources, and explore opportunities to increase staffing levels when possible.

Issue 4: Storm water investigations and site discovery efforts

The City of Portland is investigating contamination and source control options (i.e., conducting a remedial investigation and feasibility study) for the City's municipal storm water conveyance system in Portland Harbor under DEQ oversight. The purpose of the work is to determine whether discharges from the City's outfalls are a significant source of Portland Harbor sediment contamination. DEQ is working closely with the City to identify upland sites that may be contributing contamination to the storm water outfalls. A number of new upland sites may be identified in this process, and limited staff resources may affect DEQ's ability to evaluate these new sites.

DEQ will continue to prioritize source control work based on the most significant and potentially significant sources, including upland sites contributing storm water to the City's conveyance system.

Issue 5: Storm water evaluation and control

Storm water has been the most challenging Portland Harbor contaminant migration pathway for DEQ to evaluate and control because of the many sources contributing to storm water systems, the temporal variation in storm water and the complexity of storm water regulation. For these reasons, storm water evaluation and control has generally lagged behind other contaminant migration pathways (i.e., soil and groundwater pathways) in Portland Harbor source control efforts.

DEQ sees resolution of this issue through a number of elements. First, with the December 2005 finalization of the JSCS (and JSCS Appendix D, "*Framework for Portland Harbor Storm Water Screening Evaluations*"), DEQ project managers now have tools to better evaluate Portland Harbor storm water. Second, DEQ recently appointed Karen Tarnow as the Portland Harbor Storm Water Coordinator. This City of Portland, Bureau of Environmental Services-funded position was created to provide programmatic regulatory and site-specific assistance to sites that discharge storm water to the Harbor. Karen will assist DEQ project managers with Portland Harbor storm water issues and help advance the storm water evaluation and control process. Third, DEQ's Portland Harbor Manager and Project Coordinators will work with project managers to address the storm water pathway in a timely manner.

Issue 6: Developing a long-term storm water solution

A long-term solution is needed to control contaminants in storm water discharges to Portland Harbor to ensure that ongoing storm water discharges do not recontaminate in-water cleanup remedies.

Resolving this issue will take time. In 2005, DEQ formed a Portland Harbor Storm Water work group composed of staff and managers from DEQ's Cleanup and Water Quality Programs. The purpose of the work group is to address the issue – to develop a regulatory method of ensuring that storm water will not recontaminate sediments after the remedy for Portland Harbor has been implemented. The work group will continue to meet and attempt to develop a long-term storm water solution for Portland Harbor.

7.0 Summary

DEQ is making significant progress in controlling sources of contamination to the lower Willamette River in Portland Harbor, and is coordinating resources of its Cleanup, Hazardous and Solid Waste, Water Quality and Spills Programs to achieve upland source control objectives by the expected time of the Portland Harbor Record of Decision. To date, DEQ has identified approximately 80 upland sites that may be potential sources of contaminants in Portland Harbor, and these sites have been prioritized for additional investigation or source control.

Currently, DEQ is actively overseeing investigation and source control work at over 60 upland sites (summarized in Table 4). Of these 60 sites:

- DEQ has determined that 16 sites are considered to be a high priority for source control. Seven of these high priority sites have active or operating source control measures in place.
- The priority level for 33 sites has not yet been determined. Source control evaluations, which will determine the priority for source control, are scheduled to be complete for 25 of these 33 sites in 2006.
- DEQ has determined that source control work is complete, through closing and/or issuing "No Further Action" determinations, at 14 upland sites (see shaded sites in Table 4).

In addition, the DEQ Toxic Use/Waste Reduction Assistance Program (TU/WRAP) is providing technical assistance to facilities in the Portland Harbor area that may be discharging contaminants to the river via the City's storm sewer system, encouraging these facilities to reduce their hazardous waste use and pollution releases. DEQ TU/WRAP staff worked with the

City of Portland to identify priority areas and facilities, and conducted over 70 technical assistance visits and facility inspections within City outfall basins M-1, 18, 24 and 52. DEQ and the City are currently evaluating the next City outfall basins to focus on in technical assistance and inspection efforts.

DEQ will submit a Milestone Report to EPA each quarter, and update Table 4 with the current status of source control work at all upland sites. For more information about the Milestone Report or DEQ's source control work generally, please contact Jim Anderson, DEQ Portland Harbor Project Manager, at (503) 229-6825, or anderson.jim@deq.state.or.us.

8.0 Obtaining Additional Information on Upland Source Control Work

For more information on DEQ's source control work at any of the sites listed in Table 4, see DEQ's Portland Harbor web page (http://www.deq.state.or.us/nwr/PortlandHarbor/ph.htm) and click on "Map of Sites" on the left side bar. This link provides a map showing all Portland Harbor upland sites and summary reports of the status of source control work. Just open the map and click on the site you are interested in to connect to DEQ's Environmental Cleanup Site Information (ESCI) database, which houses current information on work at each site.

Alternatively, contact the DEQ project manager (PM) that is leading work on the site you are interested in. Contact information for each DEQ PM is listed on the last page of this report.

For more information on the status work on the Portland Harbor Superfund Site, see EPA's Portland Harbor web page (http://yosemite.epa.gov/r10/cleanup.nsf/sites/ptldharbor).

9.0 Information about Table 4: Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor

The purpose of Table 4, entitled *Controlling Confirmed or Suspected Upland Sources of Contamination to Portland Harbor*, is to track and share information on the status of DEQ's efforts to evaluate and control sources of pollution to the Willamette River in Portland Harbor. The table provides information on each upland site that DEQ is working on in the Harbor, including the status of evaluations to determine whether source control is needed, the progress of source control measures, and the status of source control decisions and EPA review. Below is some helpful information for interpreting the table, including definitions for key terms and acronyms used.

Site Information and Project Status

The first columns of Table 4 provide basic background information on each site, including:

- the name of the site,
- the site's reference number for DEQ's Environmental Cleanup Site Information (ESCI) database,
- the location of the site (river mile and address),
- the DEQ project manager (PM) that is leading source control work,
- the type of agreement DEQ is using to direct cleanup activities at the site (i.e., Intergovernmental Agreement, Portland Harbor Agreement, Unilateral Order, etc.), and
- the status of work occurring at the site (i.e., Preliminary Assessment, Remedial Investigation, completed Source Control Decision, Remedial Design/Remedial Action, etc.).

Source Control Evaluation

The Source Control Evaluation (SCE) columns in Table 4 provide information on the status of DEQ's work to evaluate the need for source control measures, including the status of SCE for each potential pathway, the schedule for completing SCE, the basis for determining whether source control measures are needed, and the status of EPA review.

<u>Potential pathways</u>
Six standard pathways represent the major potential pathways that contaminants could follow to reach the river from an upland site. These pathways include:

- overland transport/sheet flow – the uncontrolled flow of water and other material to the river from a site
- back erosion – erosion of material within the sloping bank areas of the site to the river
- groundwater – groundwater plumes or discharges to the river via seeps or through preferential pathways
- stormwater – stormwater discharges to the river that originate from a pipe or stormwater system, including unpermitted stormwater discharges and discharges under a DEQ general stormwater permit
- overwater activities – the storage or use of hazardous substances over the water (i.e., storage tanks on docks, permanent work activities conducted over water), that if released would be a

potential current or future source of contamination to the river; pipelines and other conveyance systems are not considered in this category, releases from these types of systems are reported to the Oregon Emergency Response System (OERS) system for clean up

- other – may include permitted wastewater discharges, individually permitted stormwater discharges, air deposition or other pathways

Each of these standard pathways appears for each site in Table 4 to track SCE work on a pathway-specific basis.

Use of "N/A" for the pathways

N/A is used in Table 4 to indicate that the particular pathway does not exist at the site. For example, for an upland site that is set back from the river (i.e., not adjacent to the river's edge) N/A would indicate that the *overland transport/sheet flow*, *overwater activities*, and *bank erosion* pathways do not exist at the site. For a site that is adjacent to the river, but where a concrete seawall lines the river bank, N/A would indicate that the pathway *bank erosion* does not exist at the site.

Priority levels for each pathway and site

Each pathway evaluated at each site is given a priority level for source control upon completion of the SCE, or when adequate information exists to determine the pathway's priority. Pathways are prioritized based on their ability to carry contaminants from upland areas to the river at concentrations that exceed Screening Level Values (SLVs) listed in the JSCS (see p. 4-3 through 4-6 of the JSCS for more information on the prioritization process, and JSCS Table 3.1 for SLVs). Each site is then given a priority level based on the highest priority of the pathways. For example, if a site has two *low* priority pathways and one *high* priority pathway, the site is determined to be a *high* priority for source control. Definitions for *high*, *medium* and *low* priority determinations follow.

- High – High priority pathways and sites are those where a complete contaminant migration pathway exists and the upland source is significantly impacting the river or poses a significant and imminent threat to the river based on initial evaluation of key source control prioritization factors (listed on p. 4-3 of the JSCS). A primary consideration is that one or more media (soil, water or air) significantly exceed applicable SLVs at the point of discharge to the river (e.g., water at the end of a discharge pipe, or soil or material at the riverbank) or the most reliable and cost-effective data point (e.g., groundwater measured at the shoreline), or where a bioaccumulative chemical is detected at concentrations significantly above the SLV. In addition, if an upland source is violating DEQ narrative water quality criteria for the Willamette River, the site may be considered a high priority. High priority sites are expected to move forward with aggressive source control measures without delay or be subject to enforcement action.
- Medium – Medium priority pathways and sites are those where a complete contaminant migration pathway exists and the upland source is impacting the river or poses a significant and/or imminent threat to the river based on an initial evaluation of key source control prioritization factors (listed on p. 4-3 of the JSCS). A primary consideration is that one or more media exceed applicable SLVs, but not significantly, at the point of discharge to the river, or where a bioaccumulative chemical is detected at concentrations above the SLV.

Although exceedance of SLVs does not necessarily indicate that a site poses a significant and/or imminent threat or needs to immediately implement source control measures, it does indicate that the site may pose a threat to human health or the environment and that additional evaluation may be needed to determine if source control measures are required to prevent, minimize or mitigate the migration of hazardous substances to the river. If the site exceeds one or more SLVs, the need for further characterization or for implementation of source control measures will be based on a site-specific weight-of-evidence determination. Medium priority sites are expected to perform a weight-of-evidence evaluation to determine if source control measures are required (see p. 4-5 of the JSCS for more information on the weight-of-evidence evaluation).

- Low – Low priority pathways and sites are those where upland data indicate, based on an initial evaluation of key source control prioritization factors (listed on p. 4-3 JSCS), that the site likely poses a low threat to the river (e.g., concentrations are near or below SLVs) or where DEQ, in consultation with EPA, may issue an upland "No Further Action" (NFA) determination or lower the State's priority of the site for further upland investigation or remedial action under DEQ's cleanup authority. Source control measures will not be required at low priority sites unless determined necessary by the results of the Portland Harbor RIFS or ROD.
- p High – DEQ's preliminary determination is that this is likely a high priority pathway or site based on available information. A final determination of pathway or site priority will be made upon completion of the SCE.
- p Med – DEQ's preliminary determination is that this is likely a medium priority pathway or site based on available information. A final determination of pathway or site priority will be made upon completion of the SCE.
- p Low – DEQ's preliminary determination is that this is likely a low priority pathway or site based on available information. A final determination of pathway or site priority will be made upon completion of the SCE.

Source Control Decisions and Status of Source Control Measures

The Source Control Decisions (SCDs) and Status of Source Control Measures (SCMs) columns in Table 4 provide information on actions taken or needed to control sources of contamination to the river, including the selected SCMs for each pathway, status of SCM implementation, status of EPA review, and ongoing operation and maintenance requirements.

For many sites listed in Table 4, boxes for information on SCDs and SCMs will be blank because source control work at those sites is still in the evaluation (SCE) phase. Other sites may be in the process of implementing SCMs, and still others may have completed all source control work. For those sites that have completed upland source control and SCMs have been determined to be effective, shading indicates that work is finished at this point in time. Upon completion of the Portland Harbor in-water RIFS, however, DEQ will reevaluate all source control work to ensure that it adequate controlled contaminants to the final cleanup levels developed for the Harbor.

9.1 Acronyms and abbreviations

Agr	Agreement
AOC	Administrative Order on Consent
AS/SVE	Air sparge/soil vapor extraction – a Source Control Measure used to remove volatile contaminants from groundwater; often combined with treatment measures
AST	Above ground Storage Tank
AWQC	Ambient Water Quality Criteria
BMPs	Best Management Practices
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COI	Contaminant of Interest – chemicals present in Portland Harbor at levels that could threaten human health and the environment
DEQ	Oregon Department of Environmental Quality
ECSI	DEQ's Environmental Cleanup Site Information database
EPA	Environmental Protection Agency
FS	Feasibility Study – a phase of the cleanup process; evaluating cleanup alternatives after the Remedial Investigation has been completed
GW	Groundwater
ICP	Independent Cleanup Pathway
IGA	Inter-Governmental Agreement
IRAM	Interim Remedial Action Measure
HVOCs	Halogenated Volatile Organic Compounds
JSCS	Joint Source Control Strategy – issued by DEQ and EPA in December 2005[6]
LNAPL	Low density Non-Aqueous Phase Liquid
N/A	Not Applicable – used in Table 4 to indicate that the particular pathway does not exist at the site
NAPL	Non-Aqueous Phase Liquid
N&E	Nature and extent of the contamination at the site
NFA	No Further Action – a DEQ notice to a Responsible Party declaring that no further cleanup action is needed at the site
OF	Outfall
p&t	Pump & Treat system – a Source Control Measure used to remove or contain and treat contaminated groundwater
PA	Preliminary Assessment – an early assessment stage of the cleanup process
PCB	Polychlorinated Biphenyls
PH	Portland Harbor
PH Agr	Portland Harbor Agreement – a formal agreement to conduct the remedial investigation and source control work
PH Ltr Agr	Portland Harbor Letter Agreement – an initial agreement to conduct limited investigation and cleanup activities and cover DEQ's oversight costs
PM	DEQ Project Manager leading cleanup work at the site
PPA	Prospective Purchaser Agreement – a tool for negotiating and agreeing upon potential liability for prospective purchasers of sites

[6] The JSCS is available on DEQ's web site at http://www.deq.state.or.us/nwr/PortlandHarbor/ph.htm; click "Joint Source Control Strategy" on the left side bar.

PRP	Potentially Responsible Party
RD/RA	Remedial Design/Remedial Action – a phase of the cleanup process that occurs after the Record of Decision; designing and implementing the cleanup action
RI	Remedial Investigation – a phase of the cleanup process; investigating the nature and extent of contamination and understanding the potential risks posed by the contaminants to human health and the environment
RI/FS	Remedial Investigation/Feasibility Study
RP	Responsible Party
SC	Source Control
SCD	Source Control Decision
SCE	Source Control Evaluation
SCM	Source Control Measure
SLV	Screening Level Value – a contaminant-specific level established in the JSCS (see JSCS Table 3.1) that is used to screen upland pathways and sites to identify potential threats to human health and the environment.
SOW	Scope of Work
SVE	Soil Vapor Extraction – a Source Control Measure used to remove volatile contaminants from subsurface soils; often combined with soil vapor treatment
TCA	Trichloroethane
UIC	Underground Injection Control system
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOCs	Volatile Organic Compounds
WO	Waiting on
XPA	Expanded Preliminary Assessment – an early assessment stage of the cleanup process

9.2 Contact information for DEQ Project Managers

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